Inside the Highly Effective Process

Electropolishing has been evolving since the mid-20th century, when scientists first started commercially treating metals with the combination of electricity and industrial chemicals. Since then, the process has grown more sophisticated, and now it can be used to make microscopic changes to metal parts.

So how does the process work, exactly, and what’s the point in making changes so small?

What’s Wrong with Other Finishing Methods?

Many parts aren’t suitable for traditional methods like mechanical polishing and vibratory finishing. They may have complex shapes or are fragile, leading to distortion.

Electropolishing is capable of improving complex shapes or delicate parts without imparting damage.

What’s the Point in Making Changes So Small?

Electropolishing removes all of these imperfections, making parts last longer.

To accomplish this, a metal part is charged positive and submerged in a chemical bath. Then, current is applied to activate the process. The electric current along with the electrolyte pull metal ions off the surface of the part, leaving a smooth, shiny surface behind. Like a snake shedding its skin, the surface defects are stripped away, and a new surface is revealed.

What Metals Can You Electropolish?

A: Electropolishing has a number of benefits for metal parts:

- Deburring
- Improved Corrosion Resistance
- Sizing
- Fatigue Life Improvement
- Microfinishing
- Eliminates Discoloration

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One of the common imperfections is burrs. Burrs are small pieces of displaced surface material that can snag and break. Other imperfections, such as inclusions, reduce resistance and gain bacteria—a place for growth. Rough, uneven surfaces mean areas with imperfections you can’t see without a standard microscope—under microelectrochemical conditions, Microorganisms could be initiated sites for parts to crack, bend and break prematurely.

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Who Uses Electropolishing?

Electropolishing is used for many industries.

- Surgeons & Dentists use it to keep their tools clean and functioning properly.
- Automakers & Aerospace Manufacturers use it to perfect important parts like gears and flight-critical parts.
- Manufacturers electropolish parts that are used in appliances like refrigerators and washing machines, so parts last longer and look better.

These are just a few examples of why Electropolishing is growing and more popular in a wide variety of industries.

Did You Know?

Electropolishing can improve by 50% or more.

Electropolishing is used for many industries.

- 30 Times Longer
- Passivation

Since 1954, Able Electropolishing has been an industry pioneer providing electropolishing, passivation, titanium anodizing and other metal finishing services for clients around the world. Able works with stainless steel, aluminum, brass, copper and a wide variety of everyday and specialty alloys.

www.ableelectropolishing.com